Domestic political constraints to foreign aid effectiveness*

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Abstract

The Aid Effectiveness Literature has recently investigated the effects of foreign aid on economic growth through country policies. Different results have been reached across different studies mainly due to their sensitivity to policy measures and data samples. The internal political setting of LDCs may influence the effect of aid over policy distortions and represent a reason for this ambiguity. I present a model in which the government has complete control over the policy implementation. The interaction with a domestic special interest group which benefits from distortions and a benevolent donor agency affects its decisions. I show that, while the government is always better off when foreign aid is present, the economy may be characterized by a more or less distorted equilibrium depending on the way aid modifies the policy effect on economic welfare. When aid is more effective (it reduces the negative effect of the distortion on welfare) the government has an incentive to pursue higher levels of distortion in order to extract a larger contribution from the lobby. Aid and the policy distortion become substitutes in the government's utility. Hence the distortion in equilibrium is larger than the "natural" level it would occur in the absence of aid. In such a case, the ability of the lobby to extract gains from aid non trivially leads to a less distorted equilibrium. The same result generally yields when aid is conditional on the policy implemented. Anyway I show that the possibility for more-distorted equilibria to arise does not completely disappear. When the "natural" distortion of the economy is large, a benevolent donor might still have an incentive in not properly addressing conditionality issues.

Keywords: foreign aid, policy distortion, lobbying, political economy
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1 Introduction

The domestic political conditions of less developed countries are closely related to their policy environment. Aid can affect the political setting of countries. The other way round, internal political constraints can modify the effects of aid flows. The present analysis wishes to contribute to the diagnostic side of aid literature. The understanding of the political conditions under which foreign aid is disbursed acquires relevant importance in the light of the recent debate about development strategies. Renewed importance of the issue of ownership of aid programs emerged[1]. Ownership is generally defined as *"the extent to which a country is interested in pursuing reforms independently of any incentive provided by multilateral lenders*[2] *"* . One of the problem underneath its achievement involves the internal consensus over reforms and policies to be implemented. The direct recipient of aid is typically the government[3]. The presence of domestic lobbies protecting their vested interests (different from the ones of an ideal Social Planner) is widely documented in the literature. Becker (1983) represents the seminal study concerning the political influence exerted by lobbies. Olson (1982, 1985) observed that the formation of interest groups which are favored by the status quo is intrinsic to any process of reform. Cases of lobbying for trade protection (Grossman and Helpman,1994), consumer and producers' taxes (Dixit, Grossman and Helpman, 1997) and innovation technology delay (Krusell and Rios-Roll,1996) are present for developed countries. The special interest (and the related rent-seeking) activity exerted for keeping the control of natural resources (including aid) is mainly investigated in relation to developing countries[4] (Dalmazzo and De Blasio, 2001). Ethnic and linguistic factors play a key function in the constituency of interest groups, although they are often associated somehow to the control of resources.

In my analysis the internal political constraint is given by a Special Interest Group (SIG) that affects the policy decisions of the government by means of monetary payments. Lobbying activity plays a decisive role in the quality of policy implemented. As a benchmark case I refer to the model by Grossman and Helpman (1994)[5]. The problem is typically defined as a principal-agent non cooperative game. The government's objective function depends both on the overall economic welfare and on the contribution received. It accepts payments in exchange for the implementation of a certain degree of policy only if its

[1] See Johnson and Martin in UNDP Human Development Report 2005.

[2] See Drazen (2000).

[3] Foreign assistance can be targeted directly to the population. ONGs' projects constitute an example of this kind of aid. The majority of assistance anyway is channelled through the government.

[4] See Boone(1996) on the negative effect on growth caused by natural resources and aid in elitist regimes and Tornell and Lane (1999) for an analysis of rent-seeking behaviour by powerful groups.

[5] This paper initiated the strand of political economy literature about lobbies' policy influence, following the original common agency framework of Bernheim and Whinston (1986).

utility is at least as high as maximizing its payoff in absence of contributions. The number of active lobbies influence the amount of aggregate contribution in equilibrium. When the interest groups have different preferences over their optimal level of distortion, competition allows the government to receive more. The policy outcome instead is not systematically affected by the number of interest groups. For simplicity, I limit the analysis to the presence of a single lobby. The benchmark case, indeed, sees an economy in which a certain degree of distortion is produced in equilibrium. The aim of the work is to extend this political setting to the aid context. I consider a benevolent International Financial Institution (IFI) giving assistance to the country.

It provides aid at a market interest rate and it embodies the economic welfare of the country in its utility function. Like Mayer and Mourmouras (2002) I assume foreign assistance to have a positive effect on welfare both directly and indirectly through the policy. Departing from them I do not restrict to a specific assumption. I examine the different marginal effects aid may have and the equilibrium outcomes that derive from the different hypothesis.

The empirical literature concerning the relationship between foreign aid and growth has reached ambiguous results along the last two decades. Scholars divided into different strands depending on their findings. The majority of them argued that aid is effective in spurring growth in Less Developed Countries (LDCs) on average[6], but with diminishing returns. Others did not identify a significant direct relationship between aid and growth, unless aid is interacted with a policy variable. The most influential results come from Burnside and Dollar (2000) who claim that aid has a positive effect on growth only in a good policy context. Although their work received severe critiques[7] it had an enormous impact on the aid policies of multilateral donors, driving to a switch from conditional to selective lending strategies. Finally, a few recent works find no robust evidence of a systematic relationship between aid inflows into a country and its economic growth[8], bringing evidence back to some results already obtained in the 90s[9].

The empirical literature related to the effects of economic policies on growth is instead far more omogeneous.

Considering the level of distortion produced in equilibrium depending on the different marginal effects of aid on policies give us an idea of this indirect effect of aid on growth. I describe a formal model which may lead both to a "good equilibrium" in which the presence of aid plays a role in making the government able to reduce distortions and to a "bad equilibrium" in which the economy ends up in a more distorted economy compared to the case of the absence of aid. My analysis incorporates other findings in the literature, such as Mayer and Mourmouras (2002) as specific cases of a more general framework.

[6] See Hansen and Tarp(2001).
[7] See, among the others, Easterly et al.(2003) and Hansen and Tarp (2001).
[8] See Rajan and Subramanian (2005).
[9] See Boone (1996)

2 Basic model

The political setting of the recipient country is characterized by an economy in which the government interacts with a domestic special interest group and an international financial institution (IFI). Multilateral aid typically comes with "strungs". Hence I refer to it as I am going to compare the effects of unconditional and conditional aid. However, results can as well be addressed to bilateral assistance. Here I consider the role of a single interest group, but the model can be extended to the presence of more lobbies. Further more, special interest groups face serious coordination problems when trying to exert a leverage on political decisions. I also abstract from such issues, assuming underlying collective action problems to have been already overcome[10]. The government chooses the level of "distortion" which is implicit in the choice of economic policy (for example, referring to trade protection, any positive tariff level represents a positive degree of distortion, while a 0 distortion would be associated to a free trade regulation). The distortion $\tau \geq 0$ negatively affects general economic welfare at an increasing rate. At the same time, a positive level of distortion has a favorable effect on the utility of the Special Interest Group (SIG). For this reason the group has an incentive to initiate a lobbying activity in order to influence the decisions of the political authorities. The members of the lobby offer a payment schedule that enters directly the government's utility function. I assume that these contributions have an effect only on the welfare of the government but do not affect the overall welfare of the economy. In this sense we are implicitly considering the SIG to be external to the government. A different strand of the literature focuses on the role played by agents who wish to influence political decisions from within the government.[11]. The government's policy choice also depends on the amount of financial assistance received by the IFI. This holds whether aid is conditional or unconditional on the policy implemented as aid positively affects the economic welfare function in any case.

Grossman and Helpman (1994) identify the conditions for the existence of truthful equilibria in a common agency game in which domestic lobbies offer contributions to the government to influence its trade policies[12]. Mayer and Mourmouras (2002) extend the analysis to the aid context. They also consider the possibility of aid repayment. For the moment I do not take into account repayment issues. Aid disbursement takes the form of a grant and bears no costs for the recipient country. Typically, IFIs give aid both in the form of grants and of subsidized loans. In Appendix 1 I discuss how equilibrium outcome is affected by the presence of aid repayment.

The consumers and the lobby have different preferences. Aggregate welfare

[10] See Olson (1965) for a detailed analysis of the circumstances leading to the solution of collective action problems.

[11] For example, Drazen(2001), related to the aid context.

[12] The seminal paper about the characterization of truthful equilibria in a common agency game is Bernheim and Whinston (1986). Grossman and Helpman (1994) extended this set to an economic policy environment.

$(W(\tau, A))$ depends both on the welfare of the consumers$(W^c(\tau, A))$ and on the utility of the lobby$(W^l(\tau))$. Since I consider the case of a single lobby, its weight is very small with respect to that of the citizens.

Aggregate welfare $W(\tau, A)$ is defined as follows

$$W(\tau, A) = \sum_c W^c(A, \tau) + \sum_l W^l(\tau) \tag{1}$$

where $c \in [1, N]$ is an index for the consumer and $l \in [1, J]$ is and index for the lobby member, since $J = P - N$. P is the total amount of the population that is normalized to 1. Consumers receive an equal proportion of welfare and the citizens who belong to the lobby equally share benefits derived from the distortion[13]. I can write this expression

$$W(\tau, A) = (1 - \alpha)W^c(A, \tau) + \alpha W^l(\tau), \qquad 0 < \alpha < 1 \tag{2}$$

where α is the share of the population belonging to the lobby, A equals the amount of financial assistance disbursed, $W^c_\tau < 0$ and $W^l_\tau > 0$.

Note that A only affects the welfare of the consumers. When α is close to 0, the second term disappears and the aggregate welfare coincides with that of the consumers, $W(\tau, A) = W^c(A, \tau)$. Since I assume that only one lobby is active in the economy, I rely on this simplification.

An example of τ is a tariff on some import goods which benefits the industry producing that specific good domestically. Alternatively, it can be seen as a fiscal distortion in favor of certain producers or of a part of the population controlling some kind of resources.

For a given flow of assistance A, the economy's welfare is maximized when there is no distortion, $\tau = 0$. The presence of the distortion has a negative effect on welfare, at an increasing rate: $W_\tau < 0$ and $W_{\tau\tau} < 0$.

The government's objective function depends on economic welfare and on the payment schedule offered by the SIG:

$$G(\tau, A; a) = aW(\tau, A) + C(\tau) \tag{3}$$

where $a > 0$ is a parameter that identifies the government's interest for the public welfare. The parameter a identifies the implicit weight attached to the welfare of the consumers compared to the contribution. It can also measure the quality of institutions. Its value becomes a measure of the intensity of the government's preferences. In the basic version of the model a is exogenous. The government accepts assistance from the IFI because $W_A \geq 0$, a positive level

[13] I assume that the members of the lobby group do not participate as consumers or citizens in the aggregate welfare. This simplification does not produce any relevant variation in the results.

of aid has a positive effect on economic welfare. I assume that aid enhances aggregate welfare at a decreasing rate, $W^A_{\tau\tau} < 0$.

The Special Interest Group's welfare function depends negatively on its contribution schedule to the government ($C(\tau)$) and positively on the benefits it obtains from the economic distortion.

$$L(\tau) = U(\tau) - C(\tau) \tag{4}$$

The lobby's utility function is increasing in the level of distortion at a decreasing rate: $U_\tau > 0$, $U_{\tau\tau} < 0$.

As the distortion rises, its impact on the general welfare may generate negative esternalities that reduce the positive returns of the distortion on the utility of the lobby. I also assume that $U(0) = 0$, the utility of the lobby is null if no distortion takes place[14].

Finally, the IFI's objective function is given by

$$I(\tau, A) = W(\tau, A) - rA \tag{5}$$

The IFI bears a cost $r > 0$ for financing aid. This parameter represents the market interest rate at which the IFI finances its operations.

3 Domestic political equilibrium with no foreign assistance

I begin the analysis by solving for the internal political equilibrium in the absence of foreign assistance. This will serve as a benchmark that will allow to distinguish the specific effect of aid on the political setting. In these circumstances I only need to understand how the government's decisions about the degree of distortion to adopt is influenced by the presence of the lobby. The problem can be set as follows.

The lobby and the government are the actors of a non cooperative game in two stages. In the first period the SIG offers the government a contribution schedule $C(\tau)$ and commits to its payment. In the second period the government decides the level of distortion that maximizes its own welfare, taking into account its related payment. Solving the game by backward induction this leads to

$$\max_{\tau} \quad aW(\tau) + C(\tau) \tag{6}$$

[14] In Appendix 2 I introduce the hypothesis that the utility function of the lobby also depends on aid. Departing from the literature I show which changes this different setting may produce on the political equilibrium in order to capture the effects of potential aid appropriability features by the domestic lobby.

that results in the following f.o.c.

$$aW_\tau + C_\tau = 0. \tag{7}$$

The government will be willing to accept a contribution from the lobby only if its welfare will result at least as large as without receiving the contribution[15]. The government participation constraint becomes

$$aW(\tau^*) + C(\tau^*) \geqslant aW(0) \tag{8}$$

For this condition to hold a lower bound level of distortion that maximizes $G(\tau)$ such that $C^*(\underline{\tau}) = 0$ has to exist. It follows from the previous hypothesis that this value of τ is equal to 0. In the first stage the lobby determines its contribution schedule that maximizes its welfare function, given the strategy of the government.

$$\max_{\tau} \; U(\tau) - C(\tau) \tag{9}$$

$$\text{s.t.} \;\; aW_\tau + C_\tau = 0 \tag{10}$$

$$aW(\tau^*)+C(\tau^*) = aW(0) \tag{p.c.}$$

The participation constraint is limited to the strict equality in the lobby problem, because the SIG has no interest in contributing the government more than the amount that leaves it as well off as if the contribution were not received. A larger contribution schedule would not result in a credible ex post offer.

As the contribution function enters linearly both in the government's welfare function and in the lobby's objective function, solving (9) and (10) together is equivalent to maximizing the joint utility of the lobby and the government. Following Proposition 1, p.839, in Grossman and Helpman(1994) it can be verified that all the conditions for a subgame-perfect Nash equilibrium (SPNE) of this policy game are satisfied.

The combination (C^*, τ^*) identifies a SPNE of the non cooperative policy game if:

Condition 1: $C^* \in [0, \overline{C}]$

where $\overline{C} > 0$ is the total amount of resources available to the lobby.

When C^* is feasible, the lobby cannot spend more than its total resources in financing the government with a positive contribution.

Condition 2: $\tau^* = \arg\max \; G(\tau)$, $\tau \geq 0$

[15] When the lobby is not active the value of the distortion for which the government maximizes its utility is 0.

Given the contribution set by the SIG, the government chooses the distortion level in order to maximize its own welfare.

Condition 3: $\tau^* = \arg\max\,[G(\tau) + L(\tau)]$, $\tau \geq 0$

In equilibrium no resources are wasted. The equilibrium is efficient, as the joint utility of the government and the lobby is maximized.

Condition 4: $\exists\ \underline{\tau} \geq 0$ that maximizes $aW(\tau) + C^*(\tau)$ such that $C^*(\underline{\tau}) = 0$

There exists a value of policy distortion that requires no contribution from the lobby, at which the government is just as well off as at τ^*.As we discussed above here $\underline{\tau} = 0$.[16]

Condition 2 and 3 together imply that the contribution schedule is locally truthful around the equilibrium distortion. The intuition for truthful contribution is that he marginal cost of contributing must be equal to the marginal benefit derived from τ. This guarantees that the payment schedule offered by the lobby reflects its true preferences and it is optimal ex post. If it were not the case, commitment would not be credible.

The solution for the No Aid case (τ_{NA}) is implicitly given by

$$U_\tau(\tau_{NA}) = -aW_\tau(\tau_{NA}) \tag{11}$$

and, from (p.c.), the contribution in equilibrium will be

$$C^{NA}(\tau_{NA}) = a[W(0) - W(\tau_{NA})] > 0 \tag{12}$$

Here I restrict the analysis to positive values of the contribution[17]. The same result must hold for the maximization problem of the lobby in equation (9) s.t. (10). The combination $(C^{NA}(\tau_{NA}), \tau_{NA})$ I have derived is the unique solution of the non cooperative game.

The government's indifference curves can represented (G_i) in a (τ, C) plane. They are positively sloped and convex[18] (see Fig.1)

The lobby's indifference curves show the combination of the policy distortion and the contribution to the government, for each utility level. Since its marginal utility is positive at a decreasing rate, they are upward-sloping[19] and concave.

In equilibrium the slopes of the two indifference curves must be equal:

[16] This condition is far more important in the case of two or more lobbies. It guarantees that none of the lobby has a space for augmenting the contribution of an ε in order to induce the government to modify the policy in its favor. Until the condition is not respecetd lobbies keep on competing eachother to make the governement choose a more favorable policy. That is why with multiple principals the government acquires all the surplus in equilibrium.

[17] Explicitly considering the lobby as part of the aggregate welfare also allows to analyze the case in which the SIG is able to extract resources from the government. This ability is proportional to the size of the lobby group.

[18] Their slope is $\partial C/\partial\tau\ |_{dG=0} = -aW_\tau > 0$ and, since I assume that policy distortion negatively affects welfare levels at an increasing rate, we have $W_{\tau\tau} < 0$. It follows that $\partial^2 C/\partial\tau^2\ |_{dG=0} = -aW_{\tau\tau} > 0$ so that the indifference curves are positively sloped and convex.

[19] Since $\partial C/\partial\tau\ |_{dL=0} = U_\tau > 0$ and $\partial^2 C/\partial\tau^2\ |_{dL=0} = U_{\tau\tau} < 0$ the lobby's indifference curves are increasing and concave.

$$-aW_\tau = U_\tau \tag{13}$$

This is the solution of the game that I have already derived. As expected, the level of the distortion in equilibrium diminishes when the government cares more about the public welfare (political authorities need to obtain a larger consensus), that is when a increases.[20] $C^*(\tau_{NA})$ will equal the amount that is enough to compensate the government from the reduction in welfare caused by a positive distortion. As I have already discussed, the lobby has no incentive to contribute more to the government. Thus the equilibrium holds at the tangency point of the a lobby's indifference curve, named L_E, and the lower government's contour, named G_0[21] (L curves correspond to higher utilities the lower they are).

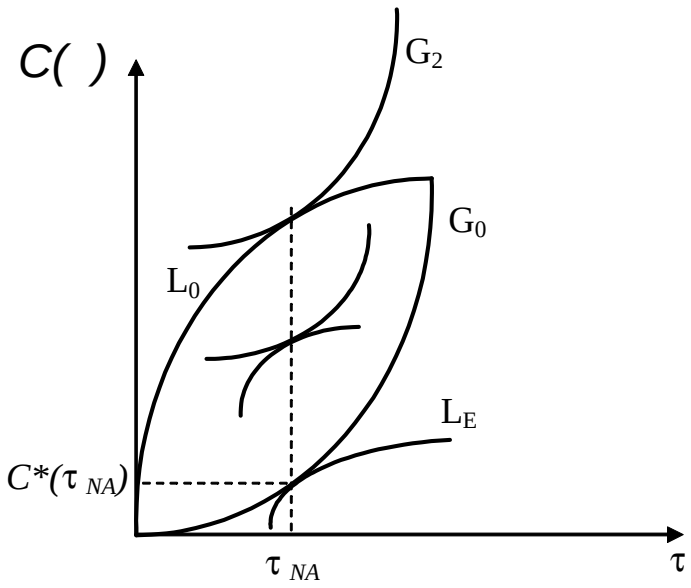

Figure 1. Domestic political equilibrium without aid

The equilibrium contribution is derived from G_0. The government in equilibrium reaches the same utility it would get if no contribution were given, $G(\tau_{NA}) = aW(0)$. The lobby's net utility is $L(\tau_{NA}) = U(\tau_{NA}) - a[W(0) - W(\tau_{NA})]$.Things would be different if more than one lobby were present. As Grossman and Helpman (1994) show, when many special interest groups compete to influence the government, the surplus is entirely appropriated by the

[20] This follows from $\partial U_\tau / \partial a > 0$.

[21] Nor τ either C are allowed to be negative, and when $\tau = 0$, $C(0) = 0$. The lobby has to leave the government as better off as if there were no contribution, otherwise there is no incentive to participate in the game. In absence of contributions the government maximizes its welfare for $\tau = 0$. Hence, the equilibrium indifference curve passes through the origin.

government. Because of this competition the aggregate contribution in equilibrium is larger.

4 Domestic political equilibrium in the presence of unconditional aid

I now consider the case in which a country receives foreign assistance which is not conditional on the implemented policies. Aid has a positive effect on welfare and non zero effects on the policy distortions. I will show that the way in which aid and policy distortions interact is crucial for equilibrium outcome.

The problem is described by a three period non cooperative game with three actors. The aid donor moves first and decides how much assistance to disburse to the recipient country. After observing the amount of aid given the lobby sets a contribution schedule to influence the political authorities over their policy decisions. In the last period, after aid and contribution schedules have been set, the government chooses the level of distortion. The different agents' objective functions are common knowledge. As in a complete information game à la Stackelberg, the IFI has a first mover advantage. For given aid, the conditions for a sub-game perfect Nash equilibrium analyzed in section 2 must still hold for the second and the third stage of the game. The solution $\tau^*(A)$ will be a function of the policy distortion to changes in the aid level A. Conditions of the previous section are modified as follows:

Condition 1': C^* has to be feasible. As before, the contribution must not exceed the total amount of resources available to the lobby.

$$C^* \subset [0, \overline{\mathbf{C}}], \overline{\mathbf{C}} > 0.$$

Condition 2':for $\tau \geq 0, A > 0$, τ^* maximizes the government's objective function, for given aid:

$$\tau^* = \arg\max \ aW(\tau, A) + C(\tau) \tag{14}$$

Condition 3': for $\tau \geq 0$, $A \geq 0$, τ^* has to maximize the joint welfare of the government and the SIG, for given aid :

$$\tau^* = \arg\max \ aW(\tau, A) + C(\tau) + U(\tau) - C(\tau) \tag{15}$$

Condition 4': there must exist a level of distortion that maximizes government's objective function and that requires a null contribution.

$$\exists \underline{\tau} = \arg\max aW(\tau, A) + C^*(\tau) : C^*(\underline{\tau}) = 0 \tag{16}$$

Solving the maximization in Condition 2' I obtain $aW_\tau(\tau^*, A) + C_\tau(\tau^*) = 0$. Substituting this result into Condition 3' yields the expression for a truthful contribution[22] by the lobby group: $U_\tau(\tau^*) = C_\tau(\tau^*)$. From the two expressions above I can derive the solution of the subgame between the lobby and the government of the aid recipient country:

$$W_\tau(\tau^*, A) = -(1/a)U_\tau(\tau^*) \tag{17}$$

which implicitly defines the equilibrium level of the policy distortion as a function of aid, $\tau^*(A)$.

As a consequence, the optimal contribution schedule, for any given A, becomes

$$C^*(\tau^*(A)) = a[[W(0, A) - W(\tau^*, A)] \tag{18}$$

Observe that whether the amount of the contribution is lower or higher in the absence of foreign assistance depends on the marginal effect of aid on the distortion. When an increase in aid lowers the negative effect of distortions ($W_{\tau A} > 0$) the contribution that compensates the government for its lost utility is lower. If aid has diminishing returns also indirectly through the policy ($W_{\tau A} < 0$) the cost of bearing each degree of distortion is larger. Hence a greater contribution is required to compensate the welfare depleament.

In order to solve the first stage of the game I need to specify the government policy reaction function to changes in aid. From (17) we can determine its slope:

$$\frac{d\tau^{*\,(G)}}{dA} = -\frac{aW_{\tau A}}{aW_{\tau\tau} + U_{\tau\tau}} \tag{19}$$

By assumption the denominator is always negative. The slope of the policy response curve depends on the sign of the cross derivative $W_{\tau A}$.

A negative $W^c_{\tau A}$ tells us that an increase in aid reduces the marginal effect of the distortion. As the marginal effect of the distortion on welfare is negative, a rise in aid induces a stronger depleament of the economy, for each level of distortion. Since $W(\tau, A)$ is a continous function, $W_{\tau A} = W_{A\tau}$. A worsening of the distortion reduces the marginal benefit of aid.

A positive $W_{\tau A}$ tells us us the opposite story. The negative effect of the policy distortion on aggregate welfare falls, as aid increases. In practice a rise in aid decreases the rate at which policy distortions deteriorate economic welfare. This hypothesis can fit to distortions like high deficit. An increase in aid may relax the government's budget constraint and make the distortion less costly.

[22] Following Bernheim and Whinston(1986), I define a truthful contribution schedule as a contribution schedule that everywhere reflects the true preferences of the lobby. The S.I.G. pays to the government the excess (if any) of the lobby's gross welfare at τ relative to some base level of welfare. Formally $C(\tau, B) = \max[0, U(\tau) - B]$, for some B.

Foreign assistance takes many different forms and might produce different kinds of spillovers on the policy environment. One hypothesis could be better applied to certain circumstances and the opposite to others. For the sake of generality I will characterize the equilibria in both cases and I will focus on their differences to describe a possible reason for the ambiguity of results obtained by the empirical literature on the effect of aid on growth.

In order to identify the equilibrium levels of foreign assistance and policy distortion, and consequently of the lobby's contribution, I must describe the IFI's welfare contours. Their slope is given by

$$\frac{d\tau}{dA}^{(I)} = -\frac{W_A - r}{W_\tau} \tag{20}$$

where the denominator is always negative and W_A is always positive. When $W_A^c > r$, which occurs for lower values of A, the slope of the IFI's objective function is positive. When $W_A < r$, for higher values of A, it is negative.

As $W(\tau, A)$ is increasing in A, with diminishing returns, the highest welfare contour of the IFI reduces to a point when τ equals 0. IFI's utility reduces as its contour curves lie farther from the A axis. The condition $W_A^c = [r/\delta(1-\alpha)]$ implicitly identifies a function $\tau(A)$ which constitutes the set of points where the indifference curves' slope changes.[23] When an increase in foreign assistance has a stronger effect in improving welfare compared to the marginal cost of financing it, the combination of both larger values at τ and aid give rise to the same amount of utility for the IFI (the slope is positive). The slope is negative, instead, (that is, higher values of the distortion are associated to lower values of assistance) when the marginal benefit of aid on economic welfare (W_A) is lower than the marginal cost of financing aid (r). This occurs for lower values of aid as aid has decreasing returns. In Figure 2 I draw examples of possible equilibria. For a matter of comparison to the the benchmark and the conditional case I invert the axes with respect to expressions (19) and (20). Policy response function is depicted as line for simplicity. It has to pass through τ_{NA} since, when no aid is given, the political game leads to that amount of distortion. Its concavity might change, but the sign of its slope is always whether positive or negative, depending on the sign of $W_{\tau A}$.Graphically the equilibrium is reached when the government's reaction function is tangent to an IFI's welfare contour. Their slopes will have the same value in that point, though we can rewrite the equilibrium condition as

$$-\frac{aW_{\tau A}}{aW_{\tau\tau} + U_{\tau\tau}} = -\frac{W_A^c - r}{W_\tau} \tag{21}$$

This expression implicitly defines the equilibrium combination $(\tau^*(A^*), A^*)$. The corresponding optimal contribution of the lobby is therefore $C^*(\tau, A^*) =$

[23] This function is defined by the combination of τ and A correspondent to the highest level of distortion for each level of the IFI's welfare. As an increase in τ, for given A, makes the IFI's utility decline we can draw conclusions about the concavity of the map of the welfare contours without calculating its expression.

$a[W(0, A^*) - W(\tau^*, A^*)]$. The equilibrium is not necessarily unique, but only two kinds may occur. This allows us to characterize the equilibrium as less-distorted or more-distorted with respect to the case of no aid. When $W_{\tau A}$ is negative, the reaction function of the government is decreasing, though the tangency point has to lie on the concave decreasing tract of the IFI's welfare contour. This equilibrium would be characterized by a positive amount of aid and by a small value of distortion τ^*, lower than $\tau_{NA.}$ If $W^c_{\tau A} > 0$ instead, the equilibrium point (τ^*, A^*) has to lie on the increasing part of the IFI's map of welfare contours thus leading to an equilibrium in which the level of policy distortion is certainly higher than τ_{NA}. In order to understand the position of the government I give the expression of its utility slope:

$$\frac{d\tau}{dA}^{(G)} = -\frac{aW_A}{aW_\tau + C_\tau} \tag{22}$$

This is negative for lower τ and positive for larger τ. For low levels of the distortion the marginal benefit gained from the contribution is stronger than the marginal depleament of the economic welfare, though the government's utility does not vary as aid decreases. When the distortion is larger, the marginal contribution is not sufficient to compensate for the worsening of economic performance and, in order to maintain the same level of utility, the government needs to receive larger amounts of aid. As it can be seen in Figure 2, in each kind of equilibrium the government is better off. It reaches a higher indifference curve (G_E) with respect to the case of no aid (G_0). Is it possible to draw similar conclusions in terms of aggregate welfare? Economic welfare positively depends on aid and negatively depends on distortions. Hence it can be drawn as an increasing curve[24]. Certainly, for $W_{\tau A} < 0$ the overall welfare increases, but the result is not obvious if I end up in more distorted equilibrium.

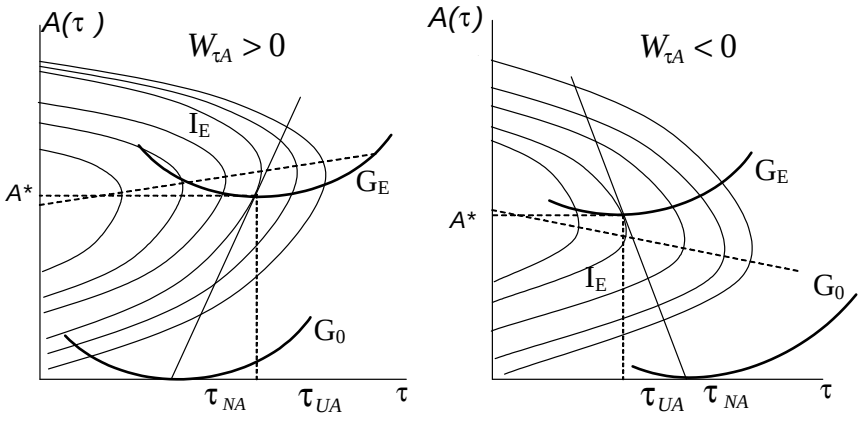

Figure 2. Domestic political equilibrium with unconditional aid

[24] Its slope is given by $\frac{d\tau}{dA}^{(W)} = -\frac{W_A}{W_\tau} > 0$. An example is drawn in Figure 2.

When aid is fungible, which is likely when it is not conditional on specific policies, its role in reducing the cost of the distortion on aggregate welfare can lead the economy to a worse policy environment. Furthermore, although the "good equilibrium" is associated to a level of welfare above the equilibrium with no foreign assistance, this is not necessarily the case in the "bad equilibrium" since both aid and distortion have increased. This produces opposite effects on economic welfare. In Appendix 2 I show how the chance of appropriating some aid by the lobby group has a non trivial positive effect on the equilibrium outcome and might drive economy from the more distorted equilibrium to the more favorable one, despite of the positive cross marginal effect of aid. The complementarity effect between aid and distortions is reduced when they become substitutes inside the lobby's utility function.

5 Domestic political equilibrium in the presence of conditional aid

Conditionality of foreign assistance has been the topic of an important debate over the aid implementation strategies by all multilateral donor agencies. Since the role of proper economic reforms has been considered a core requisite to enhance economic growth the idea of conditioning aid giving to the implementation of specific policy changes has been pursued.

I now consider the case when aid is conditional on the distortion. The framework turns to a common agency game in which two principals, the IFI and the special interest group wish to condition the government's policy choice. At the beginning of the game the IFI and the lobby simultaneously offer an assistance and a contribution schedule to the political authorities. That reduces the timing of the game to two periods. In the second and final stage the government sets the degree of distortion, after observing both the payment schedules aimed at affecting its decisions in the opposite sense. Their objectives are in fact not aligned. While the lobby, exactly as in the previous section, benefits from an increase of the distortion, the IFI offers assistance to obtain a lower level of it. Grossman and Helpman's work we have been referring up to now was specifically targeted to a common agency situation. In order to characterize the equilibrium of the game I have to adapt the aforementioned conditions to the presence of two principals.

The combination of the level of distortion, the assistance schedule and the contribution schedule $(\tau^{CA}, A^{CA}, C^{CA})$ represents a subgame perfect Nash equilibrium of the non cooperative game with conditional aid if the following conditions are respected.

Condition 1": both C and A are feasible.

Condition 2": $\tau_{CA} = \arg\max\, aW(\tau, A^{CA}(\tau)) + C^{CA}(\tau),\ \tau \geq 0$

$$a[W_\tau + W_A A_\tau] + C_\tau = 0 \tag{23}$$

Condition 3":$\tau_{CA} = \arg\max\ aW(\tau, A^{CA}(\tau)) + C^{CA}(\tau) + U(\tau) - C^{CA}(\tau)$, $\tau \geq 0$

$$a[W_\tau + W_A A_\tau] + C_\tau + U_\tau - C_\tau = 0 \tag{24}$$

Condition 4":$\tau_{CA} = \arg\max\ aW(\tau, A^{CA}(\tau)) + U(\tau)] + C^{CA}(\tau) +$
$+ W(\tau, A^{CA}(\tau)) - rA^{CA}(\tau)$, $\tau \geq 0$

$$a[W_\tau + W_A A_\tau] + C_\tau + [W_\tau + W_A A_\tau] - rA_p = 0 \tag{25}$$

Condition 5":$\exists\ \tau'$ and τ'' that maximize $aW(\tau, A(\tau)) + C(\tau) : C(\tau') = 0$ and $A(\tau'') = 0$, respectively.

Condition 1" adds the requirement for the payment schedule not to exceed the available resources also to the aid donor agency. Conditions 2" and 3" resemble the ones of the conditional case with the only difference that now A is not given, but it is a function of the distortion. Condition 4" requires that also the joint welfare of the government and the "new" principal, the IFI, has to be maximized. If this condition were not satisfied together with 3" the lobby or the IFI could propose different schedules more beneficial to their welfare. Finally Condition 5" requires the existence of two levels of distortion for which the government's objective function is maximized, when, alternatively, one of the two payment schedules is null. This implies that the government in such cases has to be as well off as at the equilibrium level, otherwise there would be space to modify its decisions over τ and gain a larger welfare level.

The two principals, when fixing their payment schedule, have now also to consider the other principal's optimal strategy. I have to verify both the contribution schedule and the aid funding to be truthful. When conditions 2" and 3" and 2" and 4" are satisfied at the same time, we obtain the expressions, respectively, for a truthful contribution and a truthful assistance.

$$C_\tau^{CA} = U_\tau \tag{26}$$

$$A_\tau^{CA} = -\frac{W_\tau}{W_A - r} \tag{27}$$

Truthful contribution is always positive and rises with the level of distortion at an increasing rate exactly in same fashion as the utility function of the lobby. In practice, as stated in Grossman and Helpman (1994) the shape of the contribution function mirrors the one of the utility function. Truthful

assistance instead potentially might both increase or decrease with the level of distortion depending on the size of the marginal benefit of aid on consumers' welfare (that is incorporated in the IFI' s objective function). The right side of (27) also represents the slope of the IFI's welfare contours in a (τ, A) plane. As the numerator is negative by definition the slope turns from positive to negative from lower to higher values of A. The equation $W_A - r$ implicitly defines the set of (τ, A) combinations where the sign of the slope changes and also, when $\tau = 0$, the value of aid the IFI would disburse to the government in the absence of any lobbying activity. When conditionality issues are considered, the hypothesis of restricting the analysis to the case of negative A_τ seems reasonable, but the scope of the present work is to underline the possible reasons for proper incentives to be dismissed. We investigate what changes might occur in equilibrium if this is the case. Substituting the truthful payments' expressions into (23) gives

$$U_\tau = -\frac{arW_\tau}{W_A - r} > 0 \tag{28}$$

The equation yielding to the equilibrium expression is satisfied when the IFI's welfare is maximized and when the joint welfare of the government and the lobby group is maximized. Graphically this corresponds to the tangency point of a IFI's welfare contour and a government's welfare contour (obtained considering the truthful contribution of the lobby) in a (τ, A) plane. Government's contours' slope is given by

$$\frac{dA}{d\tau}^{(G)} = -\frac{aW_\tau + U_\tau}{aW_A} \tag{29}$$

which is negative for smaller values of τ and positive for larger ones. The equilibrium condition becomes

$$-\frac{W_\tau}{W_A - r} = -\frac{aW_\tau + U_\tau}{aW_A} \tag{30}$$

which, solved for U_τ, gives the expression in (28). If I restrict to the case of donor agencies designing foreign assistance programs such that domestic governments are forced to lower policy distortion (when $W_A - r < 0$) a subgame perfect Nash equilibrium can only occur on the decreasing part of the government's welfare contour. Furthermore, as Condition 5" has to be respected, the equilibrium point lies on the government's welfare contour passing for the value of distortion that maximizes its welfare when no aid is given (named τ_{NA} in section 1). This allows us to observe that the level of distortion τ_{CA} produced in the equilibrium with conditional aid is lower than the one the internal political setting would reach in the absence of foreign assistance. This result holds also when the cross marginal effect of aid to policy distortion is positive. In this case the distortion will be smaller with respect to the unconditional case, but we cannot be sure of this benefit to hold if the cross marginal effect of aid is negative. Whether the distortion in equilibrium results weaker will depend on

the relative slope (in the neighbourhood of the equilibrium) of the government policy reaction function of the unconditional case and the one of the government's welfare function in the conditional setting. The steeper one produces the more distorted equilibrium, not only in terms of τ, but also of aid disbursed. Whatever the point reached, the government will end up in a lower welfare curve with respect to the case of aid disbursed without conditions. In general the government is worse off with respect to the unconditional case.

As before, comparing the IFI's welfare in the two cases leads to a clear result when aid is more effective in reducing the negative impact of distortions ($W_{\tau A} > 0$). By conditioning aid, the IFI reaches a utility curve closer to the $A - axis$, that generates a larger welfare for her. When aid is less effective on the policy setting ($W_{\tau A} < 0$) we cannot draw an a priori conclusion. The same reasoning applies when we try to compare the aggregate welfare of the economy in the two circumstances.

In my opinion, it is worthy to notice that to obtain such an equilibrium I had to assume the $A(\tau)$ function to be negative in τ, its shape did not result from the equilibrium requirements. Potentially though, by relaxing the hypothesis, another kind of equilibrium is possible. When we allow assistance schedule to be positive ($W_A - r > 0$) he occurrence of an equilibrium along the increasing part of the government's welfare contour is possible. If such an equilibrium exists the economy might still be characterized by a degree of policy distortion superior to the one obtained when no aid is disbursed. (See Figure 3(right)) Observe that when aid financing is more costly for the IFI the possibility of more distorted equilibria to occur reduces.

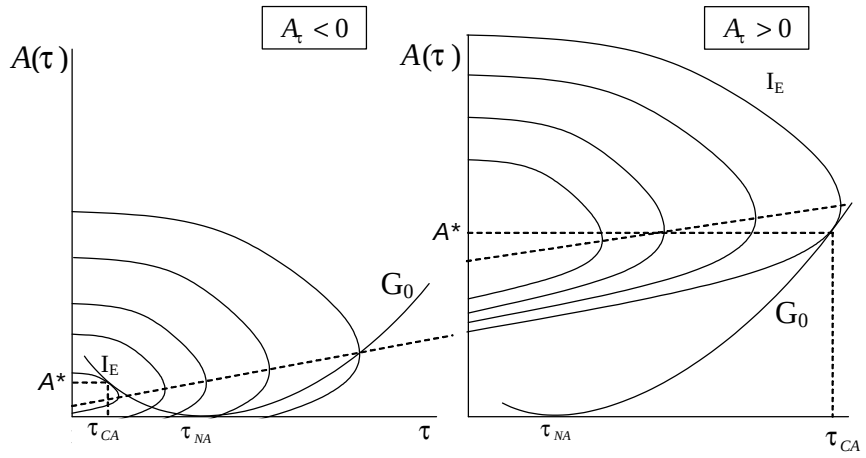

Figure 3. Domestic political equilibrium with conditional aid

6 Conclusions

I developed a theoretical framework that allows to analyze the effect of foreign aid in a country in which a special interest group actively attempts to influence the government policy decisions. The key assumption lies in aid affecting the welfare of the economy both directly and indirectly through the policy. When aid is disbursed unconditionally with respect to the policy implemented, the equilibrium outcome strictly depends on the way aid interacts with the distortion. Aid literature has typically considered their cross marginal effect on welfare to be negative, especially relying on the results by Burnside and Dollar(2000). In analyzing the aid-growth regression they conclude that the relationship is positive only after including an aid×policy interaction term. The interaction term reveals a positive sign. Since their variable was an index measuring "good policy" it would be associated to a negative cross marginal effect between the level of distortion and foreign aid ($W^c_{\tau A} < 0$) in the light of my analysis. This paper had a big impact on multilateral donors' aid strategies, probably because these findings were embodied in the 1998 World Bank Report about aid[25]. Later works demonstrate the fragilities of the results[26]. My intent is to stress the possibility for the opposite assumption to hold. Think of τ, for example, as a fiscal distortion favoring some specific good producers (or also, as a suboptimally implemented tax collection technology). An increase in the distortion has a negative effect on public welfare, because the citizens suffer from a decrease in redistribution. The government cares about the population, but it is offered a contribution by the group of producers to implement a positive distortion. In these circumstances, if the government also receives foreign assistance, the cost of accepting the reform diminishes, because the resources derived from aid allows the government to relax its budget constraint. Technically this corresponds to having $W_{\tau A} > 0$. The resulting equilibrium distortion is larger than the one obtained in the absence of aid. The economy ends up in a more distorted equilibrium when foreign assistance is present. Larger distortions yield to a decrease in the growth rate. Observe that whenever aid is fungible, that is when the government is free to allocate the additional resources according to its preferences[27], the aforementioned situation is very likely to occur. From a slightly different perspective, we can think of the government as having two "souls". A benevolent stream pursues collective welfare and addresses redistribution issues and bureaucrats are paid by the rich to set lower taxes. Acemoglu

[25] For further details see "Assessing aid: what works, what doesn't and why", World Bank Report, 1998.

[26] Easterly at al.(2004), on the American Economic Review, the same journal where "Aid, policies and growth" was published, demonstrated that Burnside and Dollar's findings were not robust to an extension of the sample and were strongly dependent on the role of 5 outliers. Other critics came from Hansen and Tarp(2001) and Ram(2004).

[27] Fungibility does not necessarily implies that aid transfers are not targeted to specific sectors. If the government has the chance to divert resources from the aid assisted sectors to others, anyway, foreign assistance simply translates into extra resources available to the government.

et al.(2007) describe such a patronage political model in order to identify a possible determinant of the emergence and persistence of inefficient states. Fiscal implementation and collection require the presence of bureaucrats. They show how the surge of an inefficient state structure can be pursued by the rich elite in order to reduce redistribution and public good provision in newborn democracies. My analysis is coherent with this kind of framework.

When we turn to conditionality it is possible to achieve a less distorted equilibrium also in the case of positive marginal effect of aid on distortions, but it is not possible to exclude the occurrence of bad equilibria completely. As the International Financial Institution incorporates the welfare of the country in its utility, in presence of very high distortions its commitment to conditionality might reveal weak. Remember that distortions negatively affect economic welfare at an increasing rate ($W_{\tau\tau} < 0$). When the distortion is high and the marginal benefit of aid is larger than the marginal cost of funding it, the IFI may prefer to increase aid as the distortion tends to worsen. This occurs for low levels of aid, since foreign assistance, instead, affects economic welfare at a decreasing rate. When the cost of financing aid increases, the space for "bad" equilibria to occur reduces. In this sense, the market interest rate r could as well be interpreted as an indirect measure of conditionality-enforcement potential. There is widespread evidence that the conditionality of foreign assistance did not ultimately produce the expected results on LDCs growth[28]. One of the reasons has been attributed to distorted incentives on the donors' side. Often multilateral institutions' aid programs are designed to realize a disbursement, notwithstanding the effective compliance of imposed conditions. This happens because the monitoring/evaluating phase is scarsely implemented or the agencies' staffs' carrier is somehow more attached to the amount of disbursements than to the effective returns on them. This basically prevents coherent strategies to be pursued. Broad and uninformed western public consensus over "something has to be done for the poors" anyway might have strengthen these counterproductive attitudes.

My considerations are also in line with the literature investigating the causes of delay on reforms. Lobbies controlling natural resources buy the government not to implement reforms that possibly undermine their vested interests. Foreign assistance might deteriorate the policy setting when it increases the government's payoff, for any given level of distortion, because it makes the government less sensitive to the costs of not implementing the reforms.

7 Appendix 1: Aid repayment

Here I briefly show how the results derived above vary when receiving foreign assistance is costly for the recipient country. The rate of repayment on aid

[28] See Mosley(1985), for instance.

disbursment equals β. The market interest rate is $r^* > 0$. Economy's net welfare becomes:

$W(\tau, A; b) = a[W(\tau, A) - \frac{1+\beta}{1+r^*}A]$

where $b = [(1+\beta)/(1+r^*)]$. Typically international organization make loans at favorable rates of interest. When β equals -1 aid represents a grant and the assumption here is that $-1 \leq \beta < r*$, in this latter case aid becoming a subsidized loan. I define b the rate of repayment and symmetrically $(1-b)$ the rate of subsidizing by the IFI. The extent of the subsidy depends on the prevailing market interest rate. The government accepts assistance only when the marginal benefit from aid exceeds its marginal cost ($W_A - b > 0$).

The equilibrium conditions of the unconditional and the conditional case become respectively

$$-\frac{aW_{\tau A}}{aW\tau\tau + U\tau\tau} = -\frac{W_A^c - (b+r)}{W\tau} \tag{31}$$

$$-\frac{W_\tau}{W_A - (b+r)} = -\frac{aW\tau + U_\tau}{a(W_A - b)} \tag{32}$$

As I briefly discussed before the results do not vary much. An increase in b makes the equilibrium distortion lower for less-distorted equilibria (when $W_{\tau A} < 0$) and higher for more-distorted equilibria (when $W_{\tau A} > 0$) in the unconditional framework. In the conditional case, since b diminishes the slope of the government's welfare contours and increases the slope of the IFI's welfare contours, it has a positive effect on the equilibrium distortion. The rate of repayment in general has the same effect of the market interest rate. Its presence amplifies the effect of r. It can be said that aid being costly, from both the donor's and the recipient's side has a positive effect on the equilibrium distortion.

8 Appendix 2: Domestic political equilibrium with aid expropriability

Considering the possibility for the special interest group to gain some positive benefit from foreign aid leads to non trivial differences in the results obtained before. If we allow for lobby's utility to positively depend on aid directly, as if the S.I.G. would be able to appropriate some of the resources deriving from aid we end up facing an interesting situation.

Considering the variations of the hypothesis the model modifies as follows

$G(\tau, A) = aW(\tau, A) + C(\tau)$

the government's welfare function is unchanged;

$L(A, \tau) = U(A, \tau) - C(\tau)$

where U now depends also on A.

As it was discussed above, marginal utility is increasing in aid, which leads to $U_A > 0$. The assumption is that $U_{\tau A} < 0$. Aid constitutes an additional

resource for the lobby, the returns on it will depend on the technological features characterizing its activity function. We consider decreasing return to scale as in the standard literature.

In the conditional case the tangency point between the government's welfare contour and the IFI's utility curve is

$$-\frac{aW_{\tau A}+U_{\tau A}}{aW\tau\tau+U_{\tau\tau}}^{(G)}=-\frac{W_A-r}{W\tau}^{(I)} \tag{33}$$

When $U_{\tau A}$ is low enough it can overcome the effect of a positive $W_{\tau A}$. The fact that the lobby is able to appropriate some benefits from aid make aid and distortions substitute within the lobby's utility function. This leads to a lower distortion in equilibrium even when aid and distortions are already substitutes in the government's objective function ($W_{\tau A}>0$).

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